WATER

NO TIME TO WASTE

A Consumer's Guide to Water Conservation

91-01914/

FRONT COVER

Maligne Lake, Jasper Park
Oil on canvas by Canadian artist Lawren S. Harris, 1924. Permanent collection of the National Gallery of Canada.

ABOUT THE PAINTING

In *Maligne Lake, Jasper Park,* Lawren Harris, a member of Canada's Group of Seven, portrays the importance of water in our natural environment. At a time when environmental concerns are paramount, the painting makes us think about our relationship with water in its many forms.

Maligne Lake, Jasper Park, has been selected to illustrate the themes of this publication and to challenge our assumptions about the abundance and condition of Canada's water resource. As we treasure and preserve the paintings bestowed upon us by the Group of Seven, we must do the same for the environments they depict.

WATER

NO TIME TO WASTE

A Consumer's Guide to Water Conservation

Environment Canada Environnement Canada

Nova Scotia Department of the Environment

CANADIAN CATALOGUING IN PUBLICATION DATA

Main entry under title:

Water : no time to waste : a consumer's guide to water conservation

Issued also in French under title: L'eau.
ISBN 0-660-93089-7
DSS cat. no. En37-93/1990F

1. Water conservation—Canada—Handbooks, manuals, etc. 2. Water use—Canada—Handbooks, manuals, etc. 3. Water-supply—Canada. 4. Water—Canada. I. Canada. Environment Canada. II. Title: A Consumer's guide to water conservation.

TD226.W3714 1990 553.7'0971 C90-098676-X

CREDITS

Writer: REIC Ltd.
Design/Cover: REIC Ltd.
Illustration: Vilnis

Published by authority of the Minister of the Environment

© Minister of Supply and Services Canada 1990

Printed in Canada
Catalogue Number En37-93/1990E
ISBN 0-660-13742-9

WATER CONTENTS

Why Water
An introduction describing why water conservation is so important. 1

Water View
The water cycle, water treatment and use. 3

Water Wise
The three golden rules of water conservation: *reduce, repair and retrofit.* 5

In the Kitchen
Wise water management starts in the kitchen. 6

In the Bathroom
Stemming the flow in the largest water waster in the home — the bathroom. 8

In the Utility Room
Coming clean while keeping green *and* saving water. 12

In the Outdoors
How to conserve water when summer rolls around. 14

Water Works
A pot-pourri of water information, from the cityscape to the countryside. 17

Water Marks
How much water the typical family can save. Turning litres into dollars and sense. 21

Water Log
The bottom line: How do *you* measure up? 22

Water Resources
Where to go, now that you've *whetted* your appetite for more information. 23

WHY WATER

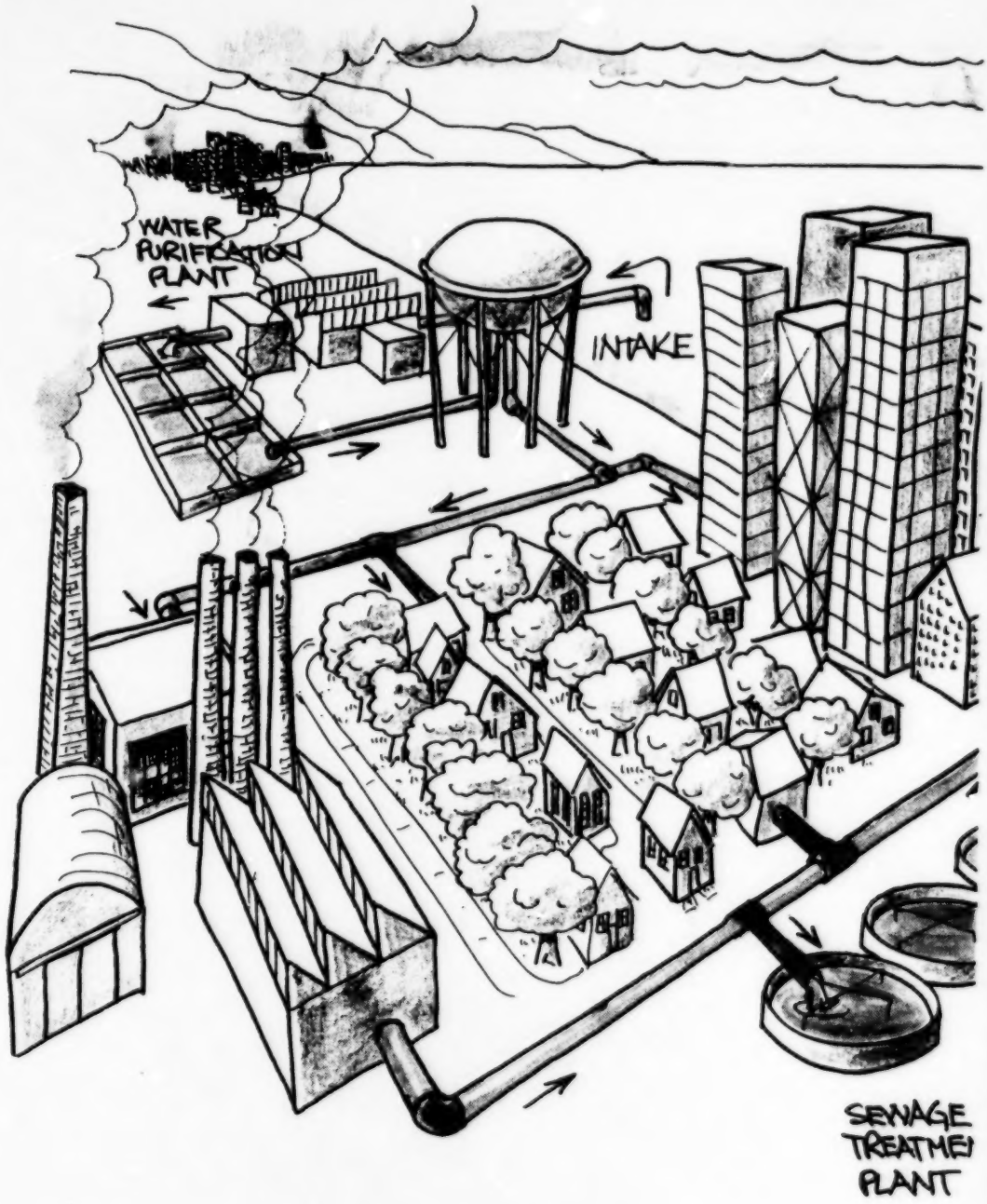
This guide is about water conservation, and what we can do to reduce the use of one of our most precious, yet undervalued, resources — *water!*

Why is water conservation so important? Because a safe and secure supply of water is no longer the "sure thing" it may have been just a few years ago. While demand for water is on the rise, pollution, declining water tables, and prolonged drought conditions are shrinking the usable supply.

We need to reassess our attitudes about water, and water conservation. We use water everyday at home and at work in so many situations that we take it pretty much for granted.

Water passes through our households, cooking our food, bathing us, washing our clothes, watering our lawns and carrying away the various by-products of our day-to-day lives. We return it to the environment, often to the same body of water it came from, usually in a much poorer state.

When we understand how water cycles through the environment, we begin to appreciate the *significant role we can play in improving the quality and protecting the quantity of our water resource*, by practising some basic rules of conservation.


WATER
PURIFICATION
PLANT
INTAKE
SEWAGE
TREATMENT
PLANT

Although water comes out of our taps and goes down our drains, we would be mistaken to think that it's a one-way trip. In fact, *water continually cycles through the environment*, and both water treatment and water use rely on this cycle.

The illustration on these pages suggests that, for many Canadian water users, *water isn't just used, it is re-used!* A sobering thought next time you flush the toilet and then brush your teeth or drink a glass of water.

When we think of water in this fashion, we can begin to appreciate the significance water conservation can have on the natural environment. The less water we use, or abuse, the less we degrade this precious natural resource — and the less we have to spend bringing our water resource back to an acceptable standard for public use.

Our abuses extend beyond the twenty litre toilet flush or the indiscriminate watering of our lawn before, during or after a rain-storm — these are water *quantity* abuses. However, few of us stop to think about some of the common household chemicals we pour down our drains, flush down our toilets and spray onto our lawns and gardens — our water *quality* abuses.

Combined with influences from industrial and agricultural pollution and leaking landfill sites, residential impacts are taking their toll on water quality.

Reports in the media about communities with contaminated sources of drinking water are increasing in frequency from one end of Canada to the other. These impacts on water quality are an added factor limiting the supply of water available for use. In other words, *we are pushing the water cycle beyond its natural limits.*

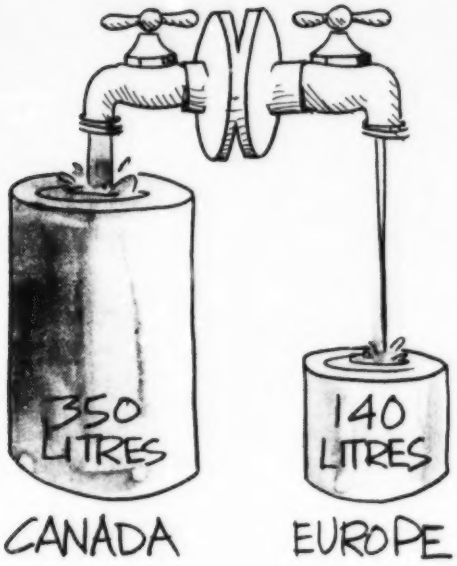
Water conservation can help give this cycle the breathing space it needs. Treating our water resource with care and respect — using it wisely and returning it to the environment in at least the same condition which we found it — will ensure that this cycle works for us well into the future.

Water wisdom begins at home, by becoming aware of our water using habits. Most of us waste so much water we can easily cut back. *Water conservation doesn't mean cramping our lifestyles by doing without; it simply means reducing the amount of water we waste.*

It all boils down to common sense, an understanding of the water cycle and the role we play in this cycle. Becoming water wise, by following the steps outlined in this guide, can: *reduce water waste; reduce water costs for the household; and, help improve the environment.* Being water wise can be habit forming!

QUICK CONVERSION CHART

LITRES		IMP. GAL.
1	=	1/5
5	=	1.1
10	=	2.2
50	=	11
100	=	22
1000	=	220



Water is essential to life and to our daily lives. We use it to cook, to clean, to keep our lawns and gardens green and growing, and for a dozen other uses everyday. And that adds up to a lot of water.

In fact, compared to Europeans, we use *more than twice* as much water.

Each of us uses about 350 litres (80 gallons) of water each day — just indoors! Of that, 40% is flushed down the toilet. Another 35% is used in showers and baths. Laundry and dishes make up 20%. And 5% goes for drinking and cooking.

When summer rolls around, and it's time to water the lawn and wash the car, household water use can increase by up to 50% again!

Whenever we use water, there's a potential for water savings. This guide will illustrate where and how you can use water more wisely both inside and outside the home.

Following the *three golden rules* of water conservation — *reduce, repair, and retrofit* — we can easily cut our water use nearly in half.

Reduce

It's surprising how much water gets wasted. We just let it run down the drain. Become conscious of the amount of water you're using and look for ways to use less whenever you can.

Repair

A leak of one drop per second wastes 10 000 litres of water a year. Most leaks are simple to find and easily fixed, at low or no cost.

Retrofit

Retrofit means adapting or replacing an older, less water efficient fixture or appliance with one of the many water saving devices now on the market.

There are many small steps you can take that add up to big water savings in the kitchen. These range from how you cook to how you clean up.

Reduce

- Take foods out of the freezer early to allow plenty of time to thaw. Thawing frozen goods under a running tap wastes water.
- Clean fruits and vegetables in a partially filled sink, and rinse them quickly.
- When boiling vegetables, use only enough water to cover the foods. Steaming uses even less water while conserving more nutrients.
- Keep a bottle of drinking water in the fridge. That way, you don't have to let your tap run to get cold water when you want a drink.
- Fill the dishwasher before you turn it on. It can use from 35 to 45 litres per cycle. Washing by hand uses about the same, *each time you wash*, so use the dishwasher once a day and save.
- Turn your taps off tightly but gently so they don't drip. And repair any leaks in and around your taps and faucets without delay.

Retrofit

Water efficient faucet aerators are a good idea in the kitchen because they reduce water flow. They can, however, cause problems with some dishwashers that hook up to the faucet and require an unrestricted flow.

Home water treatment systems are a necessity in some parts of the country, but their water consumption can be considerable.

Water treatment/softening systems are designed to remove calcium and magnesium — the minerals that cause scaly deposits on faucets and showerheads, spots on dishes, and rings around the bathtub.

But, a midsized system can use about 350 litres of water every time it regenerates the softening agent. If this backflushing happens several times a month, it can add up to 10 000 litres of water flushed down the drain each year.

Home water filtration systems are designed to take impurities out of your water and make it safer to drink. They too, can waste a lot of water doing their job. Reverse osmosis systems, for example, return only 10% to 20% of the water that flows through them. The rest goes down the drain.

Some filters cause more problems than they solve, increasing the bacteria count of the water that flows through them. Remember to change filters as recommended by the manufacturer.

Sink garbage disposal systems are water wasters as well. In order for them to work properly, you must run the tap. Depending on how often the unit is used, it may consume hundreds of litres of water each week. Consider composting your kitchen wastes instead.

Making Water Safe to Drink

Before water reaches our taps it undergoes a thorough purification process. Water is pumped, either from a municipal well, lake or river, into a sedimentation tank, where sand, dirt and other impurities settle to the bottom of the tank.

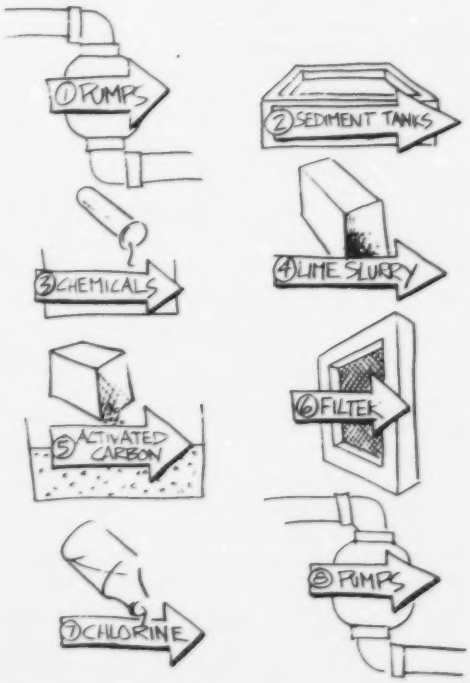
The suspended sediments in the water – those microscopic particles too small to see – are treated with chemicals, causing them to sink to the bottom.

Depending on the "hardness" of the water, a lime slurry may be added as a water softener. The water may also pass through an activated carbon filter to remove harmful chemicals and unpleasant odours, tastes and colours. Sand filters then remove fine particles and other impurities still in the water.

In the final stage, the water is treated with chlorine to destroy disease-causing bacteria still remaining in the water. At this stage, some municipalities add fluoride.

Water is then pumped to reservoirs or directly into the municipal water supply system and eventually into your home.

Communities which practise water conservation help ensure there will always be a plentiful water supply for all users and will reduce treatment costs at both ends of the cycle.



Getting the Lead Out

If your water pipes are made of lead or soldered with lead, run your water for a few minutes in the morning, and again when you get home from work. While this might seem contradictory, it does get the lead out. And use water from the cold water tap for cooking. The higher the temperature of the water coming out of the pipes, the higher the lead content.

The bathroom accounts for about 75% of the water used inside the home. Since we waste the most here it's also the area where potential water savings are the greatest — and, the easiest to obtain.

Reduce

A few water-wise habits will save you thousands of litres of water each year.

- You can save 10 to 20 litres of water each time you shave by filling the basin, instead of letting the water run continuously.
- Turn off the tap while brushing your teeth, and use short bursts of water for rinsing.
- Turn off the taps tightly but gently so they do not drip.
- A quick shower uses less hot water than a bath in a full tub. If you prefer the bath don't overfill the tub; 1/2 full should be enough.
- If you're taking a bath, put in the plug and turn on the hot water. Let it run until the water gets hot before adjusting the temperature with cold water.
- Flush the toilet only when necessary. *Never use it as a wastebasket for tissue etc.*, and never flush paints, solvents or other chemicals down the toilet.

These are just a few examples. The more aware you become of your own water using habits, the more room you'll find for improvement.

Repair

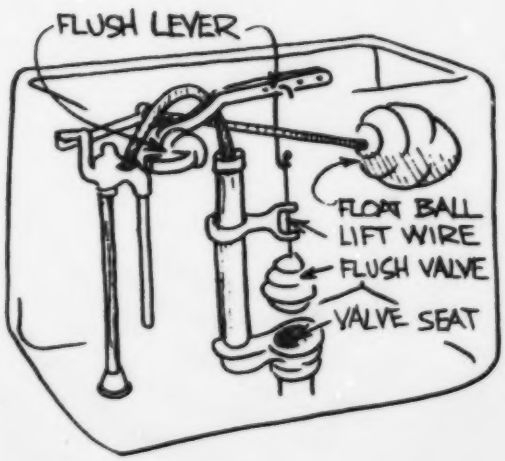
To check if your plumbing system is leaking, locate your water meter and record the reading before going to bed, and again early in the morning, before any water use. Compare the two readings. If there is a difference, you've got a leak that needs to be fixed.

Leaking faucets can be deceptively large water wasters. A tap, leaking at a rate of only one drop per second, can waste more than 25 litres of water a day — that's about 10 000 litres a year. The larger the leak, the more water is lost. The problem is often a worn-out washer, which costs pennies to replace.

Depending on the faucet type and your skill with a few tools, you can probably fix the problem yourself. If you're a little hesitant, consult a do-it-yourself book. Kits sold in plumbing supply stores often contain all the information you need.

A leaking toilet can do even more damage to your water conservation efforts. *A toilet that continues to run after flushing can waste 200 000 litres of water in a single year* — enough water to fill a large inground swimming pool!

If the leak in your toilet is bad enough, you can usually hear the water running. That isn't the case with a small leak. Try this. Put some food colouring in the holding tank and wait about fifteen minutes. If the colour shows up in the bowl without the aid of a flush, you've got a leak. A silent leak like this can waste up to 45 litres of water per hour.



Toilet run-on usually means that the *flush or flapper valve* isn't sitting properly in the valve seat at the bottom of the tank. It may be that the valve needs replacing. This is an inexpensive item to replace. First, turn off the water inlet tap under the tank by turning it clockwise as far as it will go. Hold the flush lever down until the tank empties. Unscrew the valve assembly and take it to the store to ensure you get an exact match.

If it isn't the valve that's worn, it may be that the *valve seat* has corroded. If that's the case, dry the valve seat with a cloth, and sand it smooth again with a piece of emery paper.

Bent or misaligned *valve lift wires* can also allow toilet run-on. If the wires are bent, it may be simpler to replace them than to straighten them. Pay careful attention to the way the wires are installed as you remove them and install the new ones in the same manner.

A leak at the base of the toilet? Call a professional.

Retrofit

Toilets: A conventional flush toilet uses about 20 litres of water per flush. Over the course of a year, that means *each of us uses about 40 000 litres of fresh, pure water to dispose of only 650 litres of body waste*.

The simplest way to reduce water use in the toilet is to install a *displacement device* — such as a plastic bottle or plastic bag filled with water — in the tank. This displaces the amount of water that would normally be needed to fill the tank. But, *never put bricks in your tank*. Some can disintegrate and harm the system, while others may be heavy enough to crack the tank.

The *toilet dam* is your best choice because the central channel it creates assists in proper flushing while saving up to 10 litres of water per flush.

If your toilet is more than ten years old, it's probably a water-waster. It may be time to replace it with one of the many water efficient models that are now commercially available.

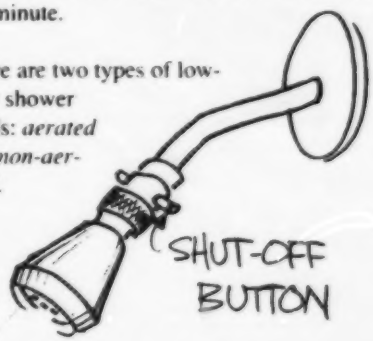
Low-flush toilets use a smaller water reservoir or tank and a specially designed bowl to give you the same flush power but with a lot less water. A model using 4 to 10 litres per flush is your best choice if you really want to save water. For example, a 4 litre flush means an 80% to 90% reduction in water use over the standard toilet. And a *35% reduction in total indoor water use!*

Showers: There's nothing like a long hot shower — which is why the shower is the second heaviest water user in the house, averaging flow rates of 20 litres per minute.

If a family of four each takes a 5-minute shower every day, they will use almost 3000 litres of water every week.

The quickest fix is to install a *low-flow shower head*. These have flow rates around 6 to 10 litres per minute.

There are two types of low-flow shower heads: *aerated and non-aerated*.



Aerated shower heads reduce the amount of water in the flow, but maintain pressure by mixing in air.

It feels like a standard shower, complete with steady spray. With the non-aerated shower head, the water is 'pulsed'. If you're partial to massage showers, this one's for you.

Some low-flow shower heads have a built-in *shut-off button*. This allows you to stop the flow of water while you lather up or shampoo, and then resume at the same flow rate and temperature.

Faucets: *Low-flow aerators* can be attached to faucets as well. These can reduce the flow rate by more than 50%. They aren't recommended in utility rooms where large volumes of water are needed over a relatively short period of time.

Don't confuse low-flow aerators with standard screen aerators, which do not reduce the flow rate. Ask the store clerk if you're unsure.

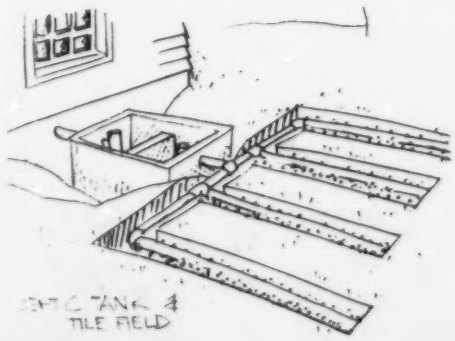
How Waste Water Is Treated

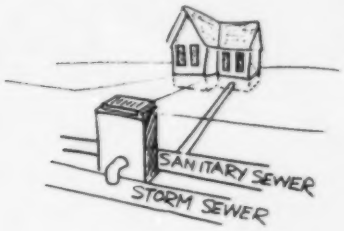
If you live in the city, waste water that leaves your house may pass through up to three types of treatment. Primary treatment removes the solid material in settlement tanks. Secondary treatment removes organic material through biological means in aeration tanks. In some municipalities, water undergoes tertiary chemical treatment to help remove phosphates and kill most disease-causing bacteria.

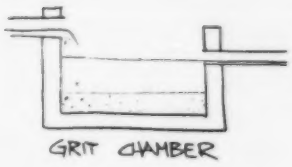
The benefits of water conservation are evident even in the treatment process. Less waste water flowing through treatment plants means that costly new treatment capacity can be put on hold. And that eases the tax burden on your pocketbook.

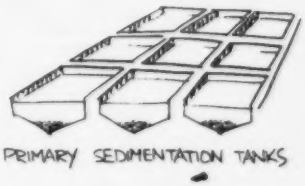
If you live in the country you probably rely on a septic tank and tile field disposal system. Waste water enters the septic tank where solids settle to the bottom. Bacteria partially decompose the sludge and the effluent flows to the tile field or leaching bed where soil completes the treatment process.

For people who rely on a septic tank, less waste water will prolong the working life of the septic system. It also means a margin of safety for your water supply, by lessening the chance of contaminants entering the water table from an overloaded septic system.

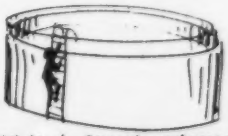


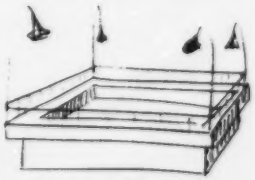



GRIT CHAMBER


PRIMARY SEDIMENTATION TANKS

AERATION TANK


SECONDARY SEDIMENTATION TANK


DISINFECTANT

Cutting back on the amount of water you use for clothes washing will take a little forethought. You'll find, however, that your efforts will be doubly rewarded. *Not only will you reduce water consumption but you'll be saving on energy costs as well.*

Reduce and Retrofit

An automatic clothes washer can use from 150 to 250 litres of water for each cycle. That's about 20% of total indoor water use.

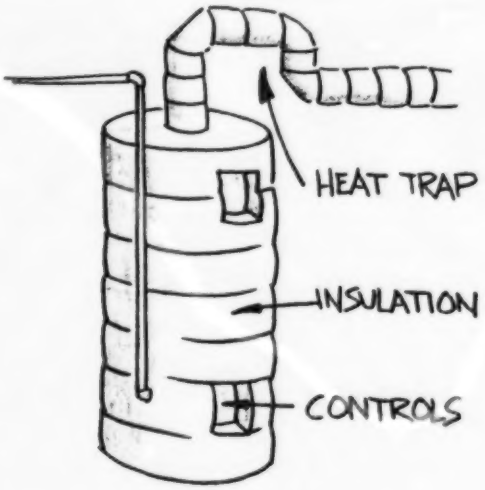
Many washers allow you to adjust the amount of water according to the size of the wash load. If yours doesn't, let the laundry build up until you have a full load before setting the machine in motion.

If you're investing in a washing machine, consider one with conservation features. Choose a washer with load size selector and variable water control.

Up to 90% of the energy used for washing clothes goes to heat the water. Washing in cold water not only cuts back on your energy bills, it's easier on your clothes.

When it comes to the hot water tank itself, a few simple measures will save you water, and cut back on your water heating bills. A family of four may spend as much as $600.00 per year to heat water. Depending on the type of tank, some of that energy is wasted as *stand-by losses* — heat lost through the walls of the tank — and, in the case of gas units, as heat lost through the exhaust stack.

By setting the thermostat back to 50°C, and insulating the tank and the hot water pipes, you can reduce water heating costs by about 25% for an investment of under fifty dollars. *And you'll save water at the same time.* Because the insulation keeps the water hotter longer, less water is wasted running the tap to get the desired temperature. The *heat trap* pipe arrangement illustrated below prevents hot water from rising up the pipe, further reducing heat losses and wasted water.



Tankless or point-of-use water heaters are another option. Tankless water heaters don't store hot water. They switch on after you turn on the tap and a heat exchanger heats the water as it travels to the spout. This eliminates both stand-by losses and heat lost through the hot water pipes. They are, however, an expensive option, and do not perform well in large households with large hot water demands. They are a good choice at the cottage.

Down The Drain!

Many people who care a great deal about the environment think nothing of pouring household chemicals down the drain. When was the last time you cleaned a paint brush with turpentine and washed the whole works away? Or used a caustic drain opener to unplug the kitchen sink?

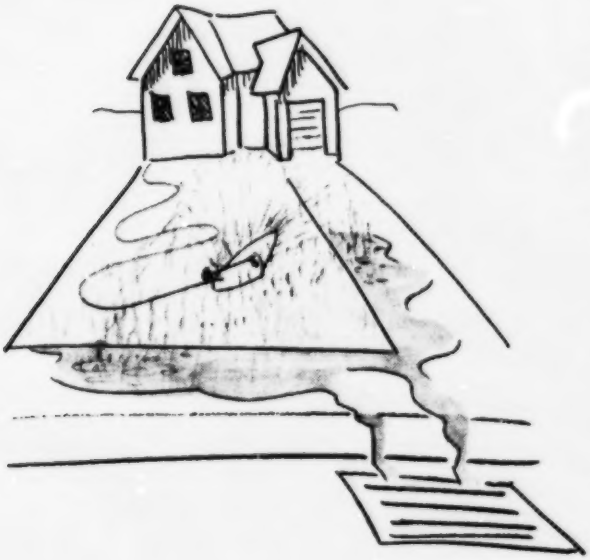
The careless disposal of motor oils, paints, solvents, cleaners and other household chemicals – some of which are highly toxic and explosive – down our toilets and drains can wreak havoc on waste treatment facilities and our aquatic environments.

Many of these chemicals can kill the bacteria which break down organic matter in sewage. Without these bacteria the treatment process is severely impaired. Further, many of these chemicals are resistant to any treatment. The result: polluted lakes, streams and ground water.

There are *environmentally friendly* alternatives to these chemicals that do just as good a job, although some require a little more elbow grease. You'll find some of them listed on page 20 of the guide.

So, how do you dispose of all those chemicals you have around the house now? *They should never be poured down the drain!* The local landfill site is no place for them either. They can seep into surrounding rivers or ground water, and end up back in your drinking water.

Many municipalities have set up household toxic waste depots where trained experts decide on the best way to reuse, recycle or safely dispose of the material. *Call your municipal office to find out how to dispose of your household chemicals.*



During the summer months, *the biggest drain on water resources is your lawn and garden.* But they don't have to be. Careful plant selection, coupled with wise watering habits, can significantly reduce outdoor water use without affecting the lushness of your landscape.

Reduce

Lawn and Landscaping: *The average suburban lawn may need about 100 000 litres of water in a growing season.* Ironically, we often over water, only to have it run off, or burn off with the sun. How many times have you seen an untended sprinkler watering a driveway or the sidewalk?

The best time to water is in the early morning — after the dew has dried — or in the late afternoon. Watering at these times cuts down on losses to evaporation. After a heavy rain, you may not need to water for a week or more.

As a general rule of thumb, your lawn and garden will need about 2 to 3 centimetres (1 inch) of water per week. One way to check whether you've applied enough water is to place a few plastic containers around your lawn when you water. That way you can measure how much water has been applied.

In many parts of the country, *watering in the spring may do more harm than good* to your plants. The less you water in the early part of the growing season, the deeper the roots grow, and the greater the natural reservoir your grass can tap.

However, *if you live in the prairies, watering in the spring is essential*, especially after a dry winter. But, be careful not to over water.

The same applies to fertilizer. Too fast a start, resulting in lush growth, sets plants up for a fall during times of drought. Slow-release organic fertilizers that ensure slow but steady growth work best. *If you can get by without any fertilizer, so much the better.*

When it comes to watering plants, *drip irrigation* is the most effective method. With drip irrigation, porous tubes deliver small quantities of water directly to the root zone.

If you use a hose, apply water slowly at the base of each plant — not on the leaves. *Soaker hoses*, with holes turned toward the ground, are best for this purpose. Some types are buried in the root zone.

If you use a sprinkler for your lawn, choose one that suits the size and configuration of your yard. Check them frequently for proper direction and even spray pattern and set a timer to remind you to turn off the water. And *use sprinklers that lay the water down in a flat pattern*. Oscillating sprinklers lose as much as 50% of what they disperse through evaporation.

Water from the sky is free, so make use of it. Cisterns are perfect for catching rain-water from the roof for use on your lawn or garden. Channel downspouts into barrels, buckets, or holding tanks, to collect water for later use.

Once you've supplied an adequate amount of water to your lawn and garden, you'll want to do all you can to keep it in the soil. *Incorporating compost is still the best way to regulate soil moisture.*

Also, cut your grass high to provide shade for the roots. Set the mower blades between 5 and 8 centimetres; and *during dry periods leave the grass cuttings on the lawn as a mulch.*

An 8 to 15 centimetre layer of loose, organic mulch on the soil surface around plants and trees retains moisture and moderates soil temperature.

If your lawn fades in the summer, don't panic. Grass becomes naturally dormant during hot, dry periods. It will revive quickly after a good rainfall or when the weather becomes cooler.

Car Washing: Using a running hose to wash your car can waste about 400 litres of water. Using a bucket with a sponge plus a *trigger nozzle* on the hose will save you about 300 of those litres. And, *never clean the driveway or sidewalk with the hose*. Use a rake and broom and save about 200 litres of water every time you sweep.

Pool: If you own a pool, be sure to use a *pool cover* when it's not in use. This will cut down on evaporative losses and will keep it cleaner and warmer. Check equipment such as filtration systems and water inlets on a regular basis for signs of leaks.

Retrofit

Yes, you can retrofit your lawn!

The secret to keeping green while reducing water use is in a *low maintenance* landscape. This means keeping thirsty turfgrass to a minimum — or replacing it entirely with native ground covers that require little upkeep.

Plants and shrubs native to your region generally require little more water than nature provides (look at the forests and fields!). Plus, they're usually the last to suffer damage from insects or disease.

Retrofitting to a low maintenance landscape can be a little costly. But you don't have to change everything at once. Also, your investment should pay you back by increasing the value of your property. In the prairies, consider desert landscaping using drought-resistant plants (xeriscaping).

There's no better resource than a local garden club or organic gardening association when it comes to advice on what to plant, when, and where.

Getting Greener

A lot of what we do to our yards can have rippling effects elsewhere. Lawn fertilizers, pesticides, and herbicides cause damage far beyond the boundaries of our fences and hedges.

As much as 50% of the chemicals that go on our lawns, gardens, and crops to ward off insects and plant pests or to increase growth, end up in ground water or surface water.

Once in the water, fertilizers promote weed and algae growth. When these plants die, the process of decomposition uses up oxygen in the water. Without oxygen, fish, and other essential aquatic organisms die also.

Other chemicals end up in the food chain and can have harmful health effects.

By switching to a low maintenance landscape, you reduce the need for fertilizers, and prevent chemical build-up in the environment.

And, remember that using salt on your sidewalk and driveway in winter can pollute ground and surface water. Use sand instead.

BEFORE

AFTER

This section contains an interesting cross section of water pot-pourri, including how municipalities keep track of, and influence water use, tips for people with private wells on how to stretch their water supply in times of drought, plus little-known facts and myths about water.

Water Conservation and the Municipality

Nearly 75% of the population in Canada relies on municipal systems for a safe and secure supply of drinking water. And, while some regions do better than others, on average, fewer than half of all municipalities in Canada treat their sewage.

Many communities are beginning to make the connection between the water that comes out of the tap and the water that goes down the drain. *Water conservation* is now being recognized as a necessary and beneficial step in keeping treatment costs within reason while ensuring that a reliable supply of fresh water is always available.

If all municipal consumers use less water, then municipal water and sewer services can be delivered more effectively. The more effective the treatment of sewage, *the less likely will our beaches be closed in the summer each year due to water contamination.*

Rates

One of the better ways to encourage water conservation is by changing *water rate structures.*

Constant and increasing block rates are best because the more you use, the more you pay. *The good news is, the more you save, the less you pay.*

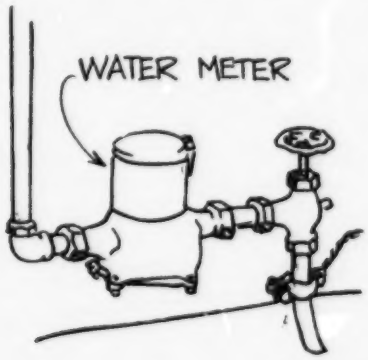
Strange as it may sound, it actually makes good economic sense to lobby for higher prices. *Water we don't use today is water that's available for use in the future*, without costly expansions to municipal sewage treatment and water purification plants.

Water Meters

Before you can make a conscious effort to save water, it's helpful to know how much you use in any given period. The municipality collects this information to determine your water bill. The basic water meter does this job effectively. If you do not have a meter, try using the *water log* on page 22 of the guide to estimate your use.

Do meters influence water consumption in residential households? Yes! Studies have shown that households which are metered use less water than unmetered households, even without price increases. Users who are aware of their use cut back in order to save money.

In Alberta, for example, Edmonton meters all residential water users, while Calgary is only partially metered. Metered users in both cities use about the same. However, the unmetered households in Calgary use about 50% more.



There's a bonus when a municipality achieves reductions in water use on a wide scale. *Water saved is water found for other uses*, such as future community growth and development.

Dollars and Sense

Some municipalities factor a sewer surcharge into their water billings. A sewer surcharge reflects the fact that it often costs about the same to collect and treat sewage as it does to purify and pump drinking water to the consumer. For example, if the water component of your billing period is $50.00 and the sewer surcharge is 100% of use, then your *total* water bill — water use + sewer surcharge — is $100.00 ($50.00 + $50.00).

In fact, you save *twice* when you conserve water. In the example above, a $20.00 saving in water use translates into a total saving of $40.00 on your bill! This means that *an investment in a water saving toilet could pay back in less than one year.*

Peaks and Valleys

Summer can present special problems for water utilities. In parts of Canada, summer use can be twice as high as winter averages — and sometimes higher during prolonged heatwaves. The highest *peak demand period* is between 5 p.m. and 7 p.m. when everyone is home cooking, cleaning, and watering the lawn.

Even if the utility has ample supply, it may not be able to pump the water fast enough during peak demand periods.

Reducing — or simply postponing — water use until after the peak can help a lot. It gives the reservoirs a chance to recharge and allows the municipality to maintain a safety margin which guarantees water flows in case of a fire emergency.

Any measures that reduce the amount of water used will also minimize the amount of waste water released into sewers and — ultimately — into the water bodies we may rely on for our drinking water.

Keeping Well

If you rely on a well, there's always the danger that water levels may drop. A season with low precipitation, or an influx of new neighbors, can leave you high and dry.

One safeguard is to use a *cistern*, which stores rain-water that runs off your roof. Cisterns can be as small as a barrel that catches water from a down-spout or as large as an underground chamber or room in the basement that holds 20 000 litres or more.

Rain-water is usually very soft and free from dissolved minerals. It is ideal for washing dishes and clothes as well as for bathing and showering. However, *cistern water should not be used for drinking*. It may contain algae, suspended sediment from the roof, and other particulates.

Depending on how you plan to use the cistern, you may have to modify your plumbing system. The simplest approach is to pipe all cistern water directly to the hot water tank. The cold water tap would continue to draw water from the well or municipal system.

Greywater Systems

If you live in an area where water shortages are common, the re-use of greywater may be an option to consider.

Greywater is the term used to describe the water which drains from household basins, sinks and bathtubs — as opposed to *blackwater* flushed down our toilets. Greywater can be used to water the garden, or can be piped to the toilet.

There are restrictions on greywater use in many municipalities. It's advisable to check with the local health department before proceeding with a greywater system.

Waterless Wonders

If you experience extremely low water levels in your well during the summer months, you might consider converting to a *micro-flush toilet* which nearly eliminates water use altogether. These include the various *composting* units on the market and flush/composting combinations.

Look for a unit that incorporates a *fan and ventilation system* to prevent odours from backdrafting into the living space.

Some composting systems use a conventional looking flush toilet which empties into a composting unit in the basement. These toilets have no tank and need only 1/3 litre (8 oz) of water per flush. *That's more than a 95% reduction in water use over a conventional toilet.* These systems are great for cottage and seasonal use, but are not recommended for year-round residential use involving more than several people.

Cleaner Cleaners

These cleansers can be poured down your drain with the knowledge that they won't be harming your water resources.

Toilet Cleaner:
A toilet brush with baking soda and some elbow grease will do the job and save you money.

Disinfectant:
Use a mixture of 250 mL of borax to every 4 litres of water.

Window Cleaners:
A mixture of vinegar and water will let the sunshine in. The mixture should be at least one quarter vinegar.

Floor and Furniture Polish:
One part lemon juice with two parts olive or vegetable oil; use a pump spray bottle.

All-Purpose Cleaner:
Mix together 250 mL of ammonia, 250 mL of white vinegar, 125 mL baking soda, and 2 litres of water.

Abrasive Household Cleanser:
Baking soda and elbow grease! It works wonders.

Laundry Soap:
Use soap flakes rather than detergent. You won't notice the difference.

Laundry Bleach:
Try borax or washing soda, instead of chlorine bleach.

Drain Cleaner:
Hot water plus 1/2 cup of washing soda.

Drain Opener:
Use a plunger or invest in a plumber's snake.

Water Myths and Facts

Myth: There is an unlimited supply of fresh water.

Fact: Only 1% of all the water on the planet is fresh — and 99% of this is locked up in the polar ice caps. That doesn't leave a lot of room for waste. Fresh water is continually recycled by nature. You're drinking the same water that once quenched the thirst of a dinosaur!

Myth: Water conservation means water bans and doing without.

Fact: Water conservation doesn't mean cramping our lifestyles by doing without; it simply means reducing the amount of water we waste.

Myth: All municipalities have sewage treatment plants.

Fact: As of March 1990, neither the cities of Victoria nor Halifax treated their sewage. Other large cities in Canada are just as bad. In fact, less than half of the municipalities in Canada treat their sewage before discharging it into lakes and rivers.

Myth: Very few toilets leak and those that do don't waste much water.

Fact: As many as 25% of all toilets leak. A toilet that runs on after flushing can leak at the rate of 20 to 40 litres per hour — that's 200 000 to 400 000 litres per year!

Myth: Automatic dishwashers waste water compared to washing by hand.

Fact: If you handwash dishes twice a day, you use about 70 litres of water. If you fill the dishwasher to capacity once per day, you use only about 40 litres of water.

How much water your household can save will depend on the number of water using appliances and fixtures in your home and, most importantly, how you use them.

A typical family of four uses about 10 000 litres of water per week just for indoor uses. Add another 2000 litres per week averaged over the year for lawn watering and car washing. *That's about 650 000 litres per year!*

Reducing water use in the kitchen as outlined in the guide could result in savings of about 200 litres per week. In the bathrooms, changes in fixtures and habits could achieve an impressive 4000 litres per week savings. Using the washing machine more efficiently could cut water use in the utility room by 500 litres per week. In the outdoors, following the steps outlined in the guide could result in savings of about 1000 litres per week.

Altogether, that's a savings of nearly 6000 litres per week, or *300 000 litres per year — a 45% reduction!*

Based on March 1990 rates for metered users (combining a water and sewer charge), what would this 300 000 litres represent in dollars in selected cities across Canada? In the City of Edmonton, it represents a $330.00 savings for the household. In Winnipeg, it translates into a $260.00 savings. In Toronto, about $210.00. And, in Halifax, around $105.00. Another point to remember is that these savings are *in addition* to the savings from reduced water heating costs.

You get high water marks — by saving water, energy and money, and protecting the environment — if you follow the steps outlined in this guide. By starting right away, you're on the road to making water conservation in the home a comfortable, familiar and reassuring habit.

The bottom line? Water conservation is both *painless*, in terms of its impacts on our lifestyles and pocketbooks, and *priceless*, in terms of its environmental benefits for ourselves and future generations.

WATER LOG

You would probably be amazed at the amount of water you actually use. If you're interested in finding out, try keeping track of your water use over the course of a week. It could help you to pinpoint areas where water savings could be easily achieved. Water use away from home can account for twenty per cent of your weekly use — so keep track of thoses uses as well.

What You Do	How Many Times — By Day							Average	Actual	Total
	1	2	3	4	5	6	7			
In The Bathroom										
• toilet flushes								x 20 litres		
• showers								x 100 litres		
• baths								x 150 litres		
• teeth brushing								x 10 litres		
• shaving								x 20 litres		
In the Kitchen										
• cooking								x 20 litres		
• dishes by hand								x 35 litres		
• dishwasher								x 40 litres		
• garbage disposal								x 20 litres		
In the Utility Room										
• washing								x 225 litres		
In the Outdoors										
• car washes								x 400 litres		
• watering								x 35 L/min		
• other								estimate		
Total Daily								**Total Weekly**		

The chart allows you to keep track of your water use on a daily basis. The figures under 'Average' give typical water consumption figures for various appliances and devices. The appliances and devices in your home may use greater or lesser amounts of water. Use the column marked 'Actual' where the difference is known.

A Primer on Water: Questions and Answers, Enviroment Canada, 1990.

About Wastewater Treatment, by Scriptographic Communications Ltd., 1988.

Canadian Green Consumer Guide, by Pollution Probe Foundation, McClelland and Stewart Inc., 1989.

Conserving Water: A Practical Guide for Homes, Farms and Communities, Province of Alberta, 1988.

Eau Reservoir: Saying Good-bye to Well-Water Worries (article on cisterns), by David Swanson, in Harrowsmith Magazine, # 81, Sept./Oct., 1988.

Goodbye to the Flush Toilet, edited by Carol Stoner, Rodale Press Inc., 1977.

Ground Water and the Rural Homeowner, by R.M. Waller, U.S. Geological Survey, 1989.

Home Water Supply: How to Find, Filter, Store and Conserve It, by Stu Campbell, Garden Way Publishing, 1983.

How to Get Your Lawn and Garden Off Drugs, by Carole Rubin, Friends of the Earth, 1989.

Low Maintenance Garden, by Graham Rose, Penguin Books, 1987.

Septic Tank Practices: A Guide to the Conservation and Re-Use of Household Wastewater, by Peter Warshall, Anchor Press, 1979.

Sunset Book on Basic Home Repairs, Lane Publishing, 1987.

Trickle-Down Effect: A Slow and Efficient Way to Water, by Robert Kourik, in Harrowsmith Magazine, # 80, July/August, 1988.

Two Minutes a Day for a Greener Planet, by Marjorie Lamb, Harper Collins, 1990.

WATER: NO TIME TO WASTE

This guide is printed in its entirety on paper that contains recovered waste. The production of recycled paper uses up to 60% less water and about 65% less energy than paper made from virgin wood. In addition, the production of recycled paper generates nearly 75% less air pollution and 35% less water pollution, compared to paper made from wood pulp.

For additional information, contact the Environment Canada office listed in the blue pages of your telephone book or write to:

Water Conservation Section
Water Planning and Management Branch
Inland Waters Directorate
Environment Canada
Ottawa, Ontario
K1A 0H3

Également disponible sous le titre: *L'EAU: PAS DE TEMPS À PERDRE La conservation de l'eau: guide du consommateur*

Water: No Time to Waste

**can be purchased in Canada
at your local bookstore**

or by mail from

**Canada Communication Group - Publishing
Ottawa, Canada K1A 0S9**

**Catalogue No. EN37-93/1990E
ISBN 0-660-13742-9**

Think Recycling!

Pensez à recycler!